



IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Schinnerer, et al.

Confirmation No.:

Application No.: 09/715,600

Examiner: Manucher Rahmjoo

Filing Date: 11/17/2000

Group Art Unit: 2676

Title: Systems and Methods for Rendering Active Stereo Graphical Data as Passive Stereo

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TRANSMITTAL OF REPLY BRIEF

Sir:

Transmitted herewith in *triplicate* is the Reply Brief with respect to the Examiner's Answer mailed on April 8, 2004. This Reply Brief is being filed pursuant to 37 CFR 1.193(b) within two months of the date of the Examiner's Answer.

(Note: Extensions of time are not allowed under 37 CFR 1.136(a))

(Note: Failure to file a Reply Brief will result in dismissal of the Appeal as to the claims made subject to an expressly stated new grounds of rejection.)

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Signature: Julie Campbell

Respectfully submitted,

Schinnerer, et al.

By Robert A. Blaha

Robert A. Blaha

Attorney/Agent for Applicant(s)

Reg. No. 43,502

Date: May 28, 2004

Telephone No.: (770) 933-9500

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:

Schinnerer, *et al.*

Serial No.: 09/715,600

Filed: 11/17/00



Group Art Unit: 2676

Examiner: Manucher Rahmjoo

Docket No. 10005282-1

For: **SYSTEMS AND METHODS FOR RENDERING ACTIVE
STEREO GRAPHICAL DATA AS PASSIVE STEREO**

APPELLANTS' REPLY BRIEF TO THE EXAMINER'S ANSWER

Assistant Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The Examiner's Answer mailed April 8, 2004 (Paper No. 15) in response to the Appeal Brief filed March 1, 2004 has been carefully considered. In response thereto, please consider the following remarks.

AUTHORIZATION TO DEBIT ACCOUNT

It is not believed that extensions of time or fees for net addition of claims are required, beyond those, which may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required therefor (including fees for net addition of claims) are hereby authorized to be charged to deposit account no. 08-2025.

REMARKS

(1) Real Party in Interest

Appellants acknowledge the Examiner's statement regarding the Real Party in Interest.

(2) Related Appeals and Interferences

Appellants acknowledge the Examiner's statement regarding the Related Appeals and Interferences.

(3) Status of Claims

Appellants acknowledge the Examiner's statement regarding the Status of the Claims.

(4) Status of Amendments After Final

Appellants acknowledge the Examiner's statement regarding the Status of Amendments After Final Rejection.

(5) Summary of Invention

Appellants acknowledge the Examiner's statement regarding the Summary of Invention.

(6) Issues

Appellants acknowledge the Examiner's statement regarding the Issues.

(7) Grouping of Claims

Appellants acknowledge the Examiner's statement regarding the Grouping of the Claims.

(8) Claims Appealed

Appellants acknowledge the Examiner's statement regarding Claims Appealed.

(9) Prior Art of Record

Appellants acknowledge the Examiner's statement regarding the Prior Art of Records.

(10) Grounds of Rejection

Appellants acknowledge the Examiner's statement regarding the Grounds of Rejection. However, Appellants respectfully traverse the stated Grounds of Rejection by respectfully reasserting and reiterating the contentions set forth in Appellants' Appeal Brief, and for the reasons set forth below particularly addressing the comments in the Examiner's Answer.

APPELLANTS' REPLY

The Examiner's rejection of claims 1-16 is improper for at least the reason that the Examiner misinterprets the teachings of *Garcia*. In addition, the Examiner's rejection of claims 1-16 is improper for failing to show where each feature of Appellants' independent claim is disclosed in the *Garcia* reference.

THE EXAMINER MISINTERPRETS GARCIA

In the Examiner's Response to Arguments section of the Examiner's Answer, the Examiner alleges that *Garcia* teaches "active input stereo" by referring the Appellants to column 11, lines 25-32 of *Garcia*. (Examiner's Answer, page 7, lines 4 – 5.) Appellants agree that this portion of *Garcia* describes traditional stereo-video imaging using time-multiplexed video streams. However, Appellants respectfully disagree with the Examiner's conclusions that *Garcia* teaches receiving "active stereo" and further teaches "passive stereo."

In this regard, the Examiner alleges that time-multiplexed systems, such as that described in *Garcia*, correspond to Appellants' defined "passive stereo." (Examiner's Answer, page 7, lines 13-21.) Appellants disagree.

Things that are simultaneous exist or occur at the same time. In contrast, *Garcia* describes a time-multiplexed system wherein the viewer's left eye is presented a first image during a first portion of the scan interval and the viewer's right eye is presented a second image during a second portion of the scan interval. *Garcia*'s first and second images derive from a single two-dimensional monocular video signal. Adjacent frames of the monocular video signal are spatially and temporally offset and alternately presented to each of the viewer's eyes to simulate a three-dimensional image. Thus, *Garcia*'s time-multiplexed system alternately presents frames of a monocular video stream between the left and right eyes of a viewer to simulate "active stereo" without using separate left and right image channels.

The Examiner offers the example of column 11, lines 41-47 and FIG. 5 in an attempt to show that *Garcia* teaches "passive stereo." In this regard, the Examiner apparently alleges that multiplexed video signals output on a single line to a monitor 200 teaches simultaneous viewing of left and right channels. Appellants disagree.

Garcia explains each eye views its own copy of a single input video stream. (*Garcia*, column 11, lines 42-43). The single input video stream, as described in the Abstract and Summary, is a two-dimensional monocular video signal. A monocular video signal does not have left and right video channels. In the Summary, *Garcia* points out an advantage of using a monocular video signal over a two-channel stereo signal is that the monocular video signal can easily be stored using conventional video storage media, while the latter two-channel signal requires more complex electronics to multiplex the two channels on the storage media. Accordingly, *Garcia* expressly teaches a single video channel with additional signal processing to simulate a three-dimensional image.

The signal processing described by *Garcia* includes spatially and temporally shifting adjacent frames of the monocular video signal and alternating the presentation of the adjacent frames between a viewer's eyes using synchronous electronic glasses. (*Garcia*, column 12, lines 12-34.) Thus, *Garcia* describes the spatial and temporal shifting of frames from a monocular video signal coupled with controlled shuttering to simulate a three-dimensional view from a two-dimensional video signal. Accordingly, *Garcia* does not teach or suggest simultaneous presentation of left and right image channels. Thus, *Garcia* cannot teach or suggest "passive stereo" as claimed and expressly defined by Appellants.

The Examiner's confusion related to the *Garcia* teachings may relate to *Garcia*'s statement "the left eye always sees the first of the time multiplex images," and "the second eye sees the second image in each display interval." (*Garcia*, column 11, lines 39-41.) In this context *Garcia* has used the word "always" to mean "only," in contrast to "continuously" as appears to be the Examiner's interpretation. As described above, *Garcia* teaches alternating the presentation of time-multiplexed (spatially and temporally

shifted) images to respective eyes of a viewer. Appellants respectfully refer the Board's attention to *Garcia* column 3, lines 1 – 59, which describes the processing undertaken by *Garcia*. Throughout this description, each eye is separately presented with a field of a frame, therefore frames are not “simultaneously presented” as recited in Appellants' claims. This interpretation is entirely consistent with other portions of *Garcia* that refer to the use of shuttered glasses for viewing the alternately displayed frames. “In the next frame, first field 2A+ is presented for the left eye, then 3B- for the right eye, then 2B+ for the left eye and 4A- for the right eye, and so on.” (*Garcia* column 13, lines 55 – 59.) Each scan interval is divided into a first portion during which a first frame is presented to the left eye and no frame is viewable to the viewer's right eye (*i.e.*, the right eye side of the shuttered glasses prohibit any image from reaching a viewer's right eye) and a second portion during which a second (spatially and temporally shifted version of an adjacent frame) is presented to the right eye and no frame is viewable to the viewer's left eye (*i.e.*, the left eye side of the shuttered glasses prohibit any image from reaching a viewer's left eye). Accordingly, *Garcia* has used the word “always” to describe the situation where “only” the viewer's left eye is presented with image frames intended for observation by a viewer's left eye and “only” the viewer's right eye is presented with image frames intended for observation by the viewer's right eye.

Thus, Appellants respectfully assert that properly attributing the meaning “only” to *Garcia*'s term “always” in accordance with the entirety of the specification that describes the spatial and temporal shifting of frames from a monocular video signal coupled with controlled shuttering to simulate a three-dimensional view from a two-dimensional video signal makes clear that *Garcia* fails to teach or suggest “passive stereo” in the context of simultaneous presentation of left and right channels.

Accordingly, the Examiner improperly interprets the teachings of *Garcia* and for at least this reason the rejection must be overturned.

THE REJECTION IS LEGALLY DEFICIENT

The Examiner's rejection of claims 1-16 is legally deficient for at least the reason that *Garcia* fails to disclose, teach, or suggest multiple features of Appellants' claim 1.

Appellants' claim 1 includes the feature of "receiving the active stereo video data."

Appellants' specification defines "active stereo" as follows:

As utilized herein, the term "active stereo" refers to the presentation of alternating channels, *i.e.*, one channel being associated with the left eye of a viewer (the "left channel") and the other channel being associated with the right eye of the viewer (the "right channel"), of video display.
(Application, p. 59, lines 1 – 4).

A channel is the path along which information in the form of an electrical signal passes. As shown above, *Garcia* receives a single two-dimensional monocular video signal. Thus, *Garcia* does not receive a left channel and a right channel. Accordingly, *Garcia* cannot receive active stereo video data. In this regard, *Garcia* converts the monocular video signal such that some frames are designated for presentation to a viewer's left eye, while adjacent frames are spatially and temporally shifted and designated for presentation to a viewer's right eye. The frames are scanned out of a buffer to a time-multiplexed display monitor. (*Garcia*, column 12, lines 24-26). For at least the additional reason that the frames designated for the viewer's left eye and the frames designated for the viewer's right eye traverse the same channel, *Garcia* does not disclose, teach, or suggest Appellants' claimed feature of "receiving active stereo video data."

Appellants' claim 1 includes the additional feature of "simultaneously outputting corresponding frames of the right channel pixel data and the left channel pixel data for displaying the image to be rendered in passive stereo." Appellants' specification defines "passive stereo" as follows:

Additionally, as utilized herein, the term "passive stereo" refers to the presentation of simultaneous channels, *i.e.*, one channel being associated with the left eye of a viewer (the "left channel") and the other channel being associated with the right eye of the viewer (the "right channel"), of video display. (Application, p. 59, lines 7 – 10).

"Passive stereo," as expressly defined in Appellants' specification and repeated above, requires the presentation of simultaneous channels. As shown above, *Garcia* uses a single display channel to forward frames from a monocular video signal. The frames are designated for observation by a viewer's left and right eyes in accordance with synchronous electronic glasses worn by the viewer. As further shown above, the frames are alternately viewed in accordance with designated portions of a scan interval. A single display channel that processes frames from a monocular video signal such that respective frames are selectively shuttered does not teach "passive stereo." Accordingly, *Garcia* does not disclose, teach, or suggest Appellants' claimed feature of "simultaneously outputting corresponding frames of the right channel pixel data and the left channel pixel data for displaying the image to be rendered in passive stereo." Appellants' method claims recite "active stereo" as a starting point, and then recite additional method limitations that involve converting that "active stereo" to "passive stereo." For at least the reason that *Garcia* fails to disclose, teach, or suggest "receiving active stereo video data" and "simultaneously outputting corresponding frames of the right channel pixel data and the left channel pixel data for displaying the image to be rendered in passive

stereo,” Appellants respectfully assert that the rejection of claims 1-16 is legally deficient and must be overturned.

With respect to the Examiner’s contention that “there is no citation within claim 1 or any other independent claims that conforms to said limitation,” (Examiner’s Answer, page 8, lines 10 – 13) in rebutting Appellants’ argument that *Garcia* fails to describe “converting active stereo to passive stereo vide data,” as recited in claim 1, Appellants respectfully disagree. In particular, not only does Appellants’ claim 1 recite “converting active stereo to passive stereo video data,” the claim recites the specific limitations required to perform such converting. Specifically, Appellants have used terms from the preamble of claim 1 within the body of that claim, thereby breathing life and meaning to those terms. Thus, not only is the preamble to be read as a limitation for defining the metes and bounds of claim 1, proper attribution of Appellants’ express definitions to terms recited within the bodies of the respective claims also is required.

Therefore, Appellants respectfully assert that *Garcia* does not receive active stereo video data as expressly defined by Appellants, does not disclose, teach, or suggest a system for displaying the image to be rendered in passive stereo as expressly defined by Appellants, much less “converting active stereo video data to passive stereo video data” as recited in Appellants’ claims.

CONCLUSION

In light of the foregoing and for at least the reasons set forth above, Appellants respectfully submit that the rejections of claims 1-16 over *Garcia* must be overturned and the now pending claims are in condition for allowance.

Respectfully submitted,



Robert A. Blaha, Reg. No. 43,502
Attorney for Applicant
(770) 933-9500

IP Administration
Legal Department, M/S 35
Hewlett-Packard Company
P.O. Box 272400
Fort Collins, CO 80527-2400

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